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ABSTRACT

Colleges and universities in the United States differ markedly in their access to economic resources, and hence in what they can do for their students. National data from the Integrated Postsecondary Education Data System (IPEDS) were used to describe the hierarchy that is reflected in schools' spending on their students, the prices those students pay, and the subsidies they get in consequence. Both historical data and projections based on recent institutional saving suggest that economic disparities among institutions and their students are increasing. The final section of the paper asks what to make of these findings and what can be said about the "right degree" of institutional disparity and the right amount of differentiation. (Contains 4 tables and 28 references.) (SLD)

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ECONOMIC STRATIFICATION AND HIERARCHY AMONG U.S. COLLEGES AND UNIVERSITIES

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Abstract

Colleges and universities in the US differ markedly in their access to economic resources, hence in what they can do for their students. National (IPEDS) data are used here to describe the resulting hierarchy that's reflected in schools' spending on their students, the prices those students pay, and the subsidies they get in consequence. Both historical data and projections based on recent institutional saving suggest that economic disparities among institutions and their students are increasing. In a final section, the paper asks what to make of this: what we can say about "the right degree" of institutional disparity, so whether we have too much, too little, or about the right amount of differentiation.

A chapter prepared for
McPherson-Schapiro
Diversity and Stratification
in American Higher Education

Economic Stratification and Hierarchy among US Colleges and Universities

Gordon C. Winston*

It's clear why we care about a person's *access* to higher education: going to college will improve quality of life, participation as a thoughtful citizen, and – increasingly – lifetime earnings. So we care *whether* people go to college. But why do we care about *where* they go? About college *choice*? The answer to that is probably just as firmly felt – it's something like, "Because colleges and universities are very different from each other and those differences matter" – but that answer has much more of anecdote and faith behind it and much less of fact. Efforts to show, even, that students' future incomes are influenced by college choice have not been conclusive.[1]

So in this chapter, I want to do three things:

- Describe what we've learned in the last decade or so about the economic "heterogeneity" of higher education – about the basic economic differences among schools that support stratification and the hierarchy of colleges and universities,
- Look at recent data to say something about the past and likely future of those differences – the dynamics of disparities – and, finally,

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[1] See Dale-Kruger, *inter alia*

- Raise, but probably not resolve, the important social question of "*optimal* institutional disparities" – how much difference there *should* be among colleges and universities – with the hope, at least, of saying something useful about how we might think about that question.

I. Cost, Price, Subsidy, and Hierarchy

We need to begin with a very fundamental economic fact about colleges and universities. The temptation is to use straightforward economic common sense – or conventional microeconomic theory if we know it – to understand colleges and universities and the market for higher education. But that can get us into analytical trouble.

The danger lies in the fact that a college is a very unusual economic institution. It fits badly into the common sense and analytical templates we've developed from experience with and careful analysis of for-profit firms. The strange nature of a college shows up most starkly in the fact that while colleges do sell their "product" – educational services – to "customers" – students – they sell it at a price that fails to cover the costs of its production. Always.[2] That's quite remarkable: in terms of costs and price, the typical college loses money on every unit it sells. It's as if groceries were always sold for less

[2] An exception would be for-profit schools since profit is, by definition, a negative student subsidy, so successful for-profit colleges are, when they are included, always in the bottom of the subsidy rankings. That is appropriate, however, when student subsidy is seen to represent society's support of students in higher education – in the successful for-profit sector, it should be negative.

than it cost to put them on the supermarket shelves. Price is less than cost; a lot less. As a result, every student-customer is *subsidized* to that extent.

The most recent national data show that the average student subsidy in US higher education is a cool $8,700 a year – the student buys an education from the average college or university that costs $12,800 to produce and she pays only $4,100 for it.

The immediate questions, of course, are "Why?" and "Where does the money come from?" And the answers are just as immediate: "Because society considers higher education A Good Thing, it subsidizes the price to encourage more people to buy more of it."[3] Private donors give gifts to cover operating costs or to build buildings or endowments and governments use their taxing power to generate public appropriations to support college and university education.

So the college is an economic hybrid. It is partly, but only partly, a commercial firm like a car dealer or grocery store, selling a product to customers who pay for it but at the same time, it is partly a charity like a church or foundation, producing something that it gives away in order to serve broadly held social values. What higher education gives away is in service of equality of opportunity, the democratic role of an educated citizenry, the contribution of education to economic growth (a justification, clear in the land-grant college era that has again become vivid with the emergence of NASDAQ and the bio-tech and dot-com firms). So those resources that support student subsidies come, broadly, "from society" because of a belief that society as a whole will be better off if

more people are well educated. Indeed, nationally, the data show that only 26% of the total revenues of US colleges and universities are generated by their commercial role – tuition income from selling their product – while the remaining 74% come from charitable donations, past and present. Economically, a college is part church and part car dealer and can only be understood that way.[4]

II. Subsidies, Hierarchy, and Stratification

But national averages of costs, price, and subsidies miss the primary fact of importance to institutional disparities – that the resources available to support student subsidies are very very different in different institutions. This is one of those facts that's well known but not well understood or appreciated.

Table 1 summarizes national data for 1995-6, showing the colleges' costs of producing a student's year of education and the price he or she pays for it, on average, net of the school's financial aid grant awards. The resulting student subsidy (Col. (1)) is, quite simply, cost (Col. (2)) minus net price (Col. (3)); algebraically for a college, $s = c - p_n$ where everything is measured for the average student.[5]

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[3] See, especially, Newman, 2000.

[4] Winston, 1999.

[5] A comment on the data used in this chapter. IPEDS Financial data for 1986-87, 1990-91, and 1995-96 (or 1994-95) have previously been used in three different analyses relevant to the issues discussed here – cross-section distribution of institutional costs, prices, and subsidies in 2,809 institutions [Winston-Yen, updated], changes in costs, prices, and subsidies in a panel of 2,213 schools over those three years [Winston, Lewis, and Carbone DP-47]; and institutional saving for a panel of 1,581 schools [Winston, Carbone, and Hurshman]. In order to gain internal consistency in the results presented here, all tables are based on a single sub-set of the population – the 1,581 schools in the saving panel. No statement made in the chapter, happily, is contradicted by the larger data sets of those studies and, indeed, in general they support stronger statements.

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Aside from the sheer size of the typical subsidy indicated by the average figures for all institutions, I think the other surprise in the top three lines is the similarity of the average student subsidy in public and private sectors. We're quite used to the idea that the public sector uses tax revenues to subsidize products to encourage their demand, but in the market for higher education, private charitable donations do the same thing and in much the same magnitudes.

The similar subsidies in public and private schools, though, are generated through very different cost and price policies. Prices and expenditures are a good deal lower in the public sector both in absolute terms and in the proportion of her costs born by the student. So the average student in the private sector gets about the same total yearly subsidy as in the public sector, but she pays more (by a factor of nearly six) for an education that costs more (by a factor of 1.6). Putting it a bit differently, a price-cost ratio (Col. (7)) shows how much a student pays for a dollar's worth of educational resources (roughly, educational quality). In those terms, the average student in the public sector gets much the same size subsidy as in the private sector but in a better bargain – she pays less than 14 cents for a dollar's worth of educational resources while the student in the private sector pays 45 cents. The student in the public sector, however, gets that good bargain for a much less costly education.

The real meat of Table 1, though, is in the disaggregation of those sectoral averages into decile averages for institutions arranged by the size of their average student subsidies. So the ten percent of the public sector colleges and universities that pay the largest subsidies to their students are at the top and they fall as we go down the table to

the smallest average student subsidies at the bottom. Private sector schools are arranged, too, by declining subsidy size.

Those differences in subsidies define an institutional hierarchy in each sector on the basis of the amount of social resources – educational spending that he doesn't have to pay for – that the average student gets through his school.

The first message on institutional stratification from these data is simply their range. Even within the crude decile groupings used in the first half of Table 1, the differences from top to bottom are great. So the average student attending a top decile private college gets a subsidy of almost $24,000 a year while the average student in a school at the bottom of the private sector gets about $3,000. It is significant, too, that the range of subsidy differentials is much narrower in the public than in the private sector, perhaps predictably. Students in the top decile in the private sector get a subsidy that's almost eight times that given in the bottom decile; students in the top public decile get a subsidy that's a bit less than three times that given in the bottom public decile.

The two other key pieces of information about economic stratification in Table 1 are (a) what the colleges with larger subsidy resources do with them – whether they are used to increase costs or to reduce prices – and (b) how those larger subsidies are distributed among their students – who gets how much.

Since a school's student subsidy equals average cost minus net price $(c\text{-}p_n)$, the arithmetic suggests that a school with more subsidy resources could use them either to produce a more expensive education or charge a lower price. But Table 1 shows that in fact larger subsidy resources within each sector are quite systematically used to support more educational spending with no significant increase in prices: more resources could lead to lower prices, but they don't. So these data are consistent with the picture of colleges and universities that sees them striving for "excellence" and using their resources to produce a better and more costly product rather than cutting prices for all their customers.[6] The exceptions that prove this rule, as usual, are Berea College[7] and Cooper Union (soon to be joined by Olin University) where their significant subsidy resources are used to support a zero tuition. Note, too, that the dominant pattern in Table 1 is consistent with Howard Bowen's famous assertion that colleges spend everything they get.[8] Moving up the columns – in either sector – increased subsidies go with increased spending, monotonically.

But what, concretely, are "student subsidies"? What do they look like? Especially when their appeal to students is held – as I've often done – to play a key role in the market for higher education[9], it becomes important that those student subsidies are not in fact obscure financial abstractions but, instead, that they take very real and tangible

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[6] Clotfelter, 1996.

[7] Apple, 1998.

[8] "The ... effect is toward ever-increasing expenditure. The incentives inherent in the goals of excellence, prestige, and influence are not counteracted within the higher education system by incentives leading to parsimony or efficiency. The question of what *ought* higher education to cost – what is the minimal amount needed to provide services of acceptable quality – does not enter the process except as it is imposed from the outside. The higher education system itself provides no guidance of a kind that weights costs and benefits in terms of the public interest. The duty of setting limits thus falls, by default, upon those who provide the money, mostly legislators and students and their families." H. Bowen, p. 20.

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forms. And they do. Larger student subsidies give more and better maintained buildings, better faculty, neater lawns, a better stocked library, more, and more imaginative academic programs, more extensive student services, better food… And all this at a net tuition not much higher than that charged by the austere low-subsidy college down the road. To compound all this, since students find high-subsidy schools attractive and queue up to get into them, larger subsidies bring more selectivity and higher quality peers. The data have shown high positive correlation between subsidies and average SATs and other measures of student quality:[10] faculty salaries, advanced degrees, and scholarly productivity are highly correlated, too.[11]

But since the higher spending, and hence educational quality, that comes with more subsidy resources doesn't carry equivalently higher tuition prices, the price/cost ratios that measure how much the student gets for his tuition dollar fall sharply with larger subsidies. Indeed that, probably, is the most dramatic single measure of disparity in Table 1: that the student going to – to take the extremes – a top decile public institution pays twelve cents for a dollar's worth of educational resources while the student going to a bottom decile private school pays 71 cents.

Finally, in Table 1 it's clear that the distribution of subsidies among students within colleges is rarely the same and that the division among students is different

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[9] Winston, 1999, Winston, 2000.
[10] Winston, 1999, Table 2.
[11] For 620 schools, 1992-93 NSOPF data give correlations with subsidies of: .96 for hourly wage, .98 for hourly teaching wage, .90 for percent PhDs, .84 for publications per faculty, and .91 for publications per faculty for the previous two years [National Survey of Postsecondary Faculty]. (These are correlations of decile averages; simple correlation coefficients over the 620 schools are, all highly significant, .367, .457, .323, .238, and .271, respectively.)

between institutions at different subsidy levels. Going back, again, to the fact that the average student subsidy is cost minus *net* price ($s = c - p_n$), part of that difference takes the form of a *general subsidy*, given to all students by virtue of a sticker price set well below cost ($c - p_s$) while the rest takes the form of individuals' *discounts* from the sticker price, as competitive price discounts or as financial aid ($p_s - p_n$). The first of these – the size of the general subsidy ($c - p_s$) – captures a major difference between public and private sector pricing strategies. The public sector gives substantially more of its student subsidies to everybody in the form of a low sticker price while the private sector sets sticker prices higher and gives a larger part of its subsidies in the form of individual financial aid or price discounts.

It's unfortunate that the IPEDS data on which these tables are based don't tell us anything about the proportion of the discounting from sticker price that represents need-based financial aid and the part that is price discounting, motivated by marketing competition for students and student quality, "merit" aid.[12] It's true, though, that those aspects of pricing are in a sufficient state of flux at this date[13] that five year old information might not be of much help, anyway.[14] What is clear is that the sticker price is becoming increasingly uninformative as it more often serves as the base from which competitive price discounts are made.[15] The motives of charitable income redistribution

[12] Nor can we determine either how many students pay full price and how many get discounts – so we can't calculate the average discount – or – the essential issue of access – the net price the poorest students pay. All we can report is the average net price over all students.

[13] See the recent discussions of Winston, 2000, and Winston-Zimmerman 2000.

[14] In the original study of subsidies [Winston-Yen, 1995], estimates of the proportion of individual subsidy in the form of need-based and "merit" aid were based on evidence from McPherson-Schapiro, 1994. That seems, now, too out of date.

[15] So it's encouraging that the college component of the CPI is being corrected to reflect net instead of sticker prices (Schwartz and Scafidi, 2000)

and equality of opportunity through need-based aid, on the one hand, and competitive jockeying for students and student quality through price discounts, on the other, are increasingly hard to separate out – the price discount that results looks the same in either case. It appears, though, that analytical attention could now usefully be shifted from 'financial aid' to the total subsidy and its distribution: 'financial aid' has become more and more the fig leaf under which competitive price-discounting for students and student quality takes place.

So, in sum, economic stratification of colleges and universities by the subsidies they pay their students is a quite basic characteristic of US higher education. More subsidy resources bring more educational spending per student, hence higher educational quality, with little increase in the student's net price. The resulting price/cost ratios, in turn, describe far better bargains at the top of the subsidy hierarchy than below – the student gets more for her tuition dollar the larger the school's subsidy resources. Students respond to this so higher subsidies go with longer applicant queues hence more selectivity. And the high-subsidy schools pay a larger part as a general subsidy to all students by setting a sticker price well below costs – they give relatively less as individual price discounts. The public and private sectors use their very similar average subsidies in quite different ways: the public sector produces a less costly education, on average, that sells for a much lower price and makes a larger part of that a general subsidy; the private sector spends more and charges more while putting more of its subsidies into price discounting for needy students or for market competition.

While stratification of US higher education in terms of the size of these student subsidies appears to be most basic, other classifications of schools that cut across this one are informative, too. So schools are differentiated importantly by location, by ideology or religious affiliation, by curriculum, by size... The most familiar and widely used alternative classification is, of course, Carnegie's that recognizes Research, Doctoral, and Comprehensive Universities, Liberal Arts Colleges, Two-Year Colleges, and a set of specialized institutions, separated by public or private control. So it's useful to put these classifications together to present the information on costs, price, and subsidy organized, alternatively, by Carnegie type and control. This is done in the bottom half of Table 1. (Note that Public Liberal Arts-I and Specialized Colleges and Private Research II Universities are left out because fewer than ten of them were in this population.)

Cost, prices, and subsidies differ by Carnegie type pretty much as one would expect from the data on size distribution – there aren't a lot of surprises. In the public sector, Research-I Universities have the largest student subsidies and expenditures[16] with Research-II Universities following close behind. It's at the other end that public sector policies on economic support and subsidies are, I think, more interesting. The 511 Two-Year Colleges – almost 60% of the public sector schools here and 33% of all public sector students in this population – deliver a dollar of educational services to their students for a price of only 9 cents. Their yearly spending per student may be modest at $8,476, but their net price, of $750 is by far the lowest and that serves to protect students

[16] A caveat is due here in recognition of the difficulty of teasing out the truly educational component of joint and total costs in a complicated multiproduct university. Since even careful methods leave a good deal of room for ambiguity about how to do it [Winston in Middaugh], there's lots of room for disagreement that can lead to very different analyses and policy inferences [Zemsky, 1999].

in those schools. What's more, in the public two-year colleges, virtually all of the student subsidy (87% of it) is given in the form of a reduced sticker price rather than as individual price discounts.

In the private sector, all Carnegie types have higher costs and prices, though again they leave student subsidies only a bit smaller than in the public sector. But the private Doctoral and Comprehensive Universities charge their students more than 50 cents for a dollar of educational spending. And within a general emphasis on individual price discounting or financial aid in the private sector, Comprehensive Universities give over half their subsidy dollars in that form. It's not clear, once again, whether this greater dependency on discounted prices is due to the higher sticker prices for which more equal access would require more need-based aid or to the aggressive use of competitive price discounting to attract students. The private Research-I Universities are in a world by themselves with their very high spending ($35,335) and subsidies ($21,973), with modest prices ($13,363) that leave them with a price-cost ratio (37.8%) that's the lowest in the private sector.

It will, perhaps, help in summarizing the economic disparities among colleges and universities in these tables to note that the Gini coefficients among schools on their per-student subsidies are 0.2579 for all institutions taken together, 0.1757 for public sector schools and 0.3384 for the private sector taken alone.[17] Putting it a bit differently, overall, 36% of the per-student subsidies are concentrated in the top 20% of the schools

[17] For those who forget the direction of Gini coefficients as easily as I do, perfect equality produces a coefficient of 0.0; perfect inequality, 1.0.

while less than 10% are found in the bottom 20%. 14% of the subsidies are found in the top 5% of the schools and 4% in the top 1%.

III. Changes in Stratification

The preceding section gave a static – one year – description of economic stratification among US colleges and universities, emphasizing differences in what students pay and what they get and consequently the extent to which they are subsidized by society. So it looked at (net) price, costs per student, and subsidy or, alternatively, a price/cost ratio that shows what part of his costs a student pays or, more alternatively yet, what he or she paid for a dollar's worth of educational expenditures.

But that's changing, always, so it's useful to turn to a brief consideration of that change. The data give us two ways to say something about the dynamics of stratification – one is how it has changed recently and the other, is how stratification is likely to change in the future. We have estimates for 1986-87, 1990-91, and 1995-96 from which to see the changing subsidies that altered institutional stratification in that important period. And we have estimates of colleges' saving during that time that, should it continue at these levels, would determine their wealth and stratification in the future. Both have been reported in other papers so will be summarized here without saying much about methodology.[18]

[18] Winston-Carbone-Lewis, 1998 (updated with 1995-6 data) and Winston-Carbone-Hrushman, forthcoming.

Changes in Cost, Price, Subsidy between 1986-87 and 1995-96

The period from 1986-87 to 1995-96 was dominated by four closely related trends that determined the size and distribution of student subsidies among schools:

- enrollments (full time equivalent) expanded significantly – by 15%, overall – but very unevenly among schools and sectors,
- a tax revolt limited the growth of support for the public sector so, putting this together with larger numbers of students, schools' per-student subsidies fell,
- sticker prices rose at headline-grabbing rates, making more resources available to schools that could be used to increase financial aid (price discounting) or educational spending (via net price increases), or both. And
- aggressive price competition became more widespread, especially in the private sector.

How schools and sectors were differentially affected by these changes, of course, determined the differences in student subsidies that emerged. Table 2 shows the effects of those changes between 1986-87 and 1995-96, first by Carnegie type, then by subsidy decile. The first line of Table 2 summarizes the overall trends -- increased enrollments, falling subsidies, rising expenditures supported by increased net tuition got from much larger sticker price increases, and the shift from general subsidies to price discounting.

The public sector, predictably, was hit hardest by all of this – it absorbed the largest increment of students over these nine years (15.2%) and the largest reduction in per-student subsidies (-3.8%) letting it increase educational expenditures only imperceptibly (0.8%) despite a big increase in average sticker price (47.2%) that was divided nearly 50/50 between increased price discounting and increased net revenues.

But within the public sector, these hard times came with a reduction in stratification, whether it is viewed in terms of Carnegie types or subsidy size in Table 2. At the top, the public Research Universities were able to restrict enrollment growth to 3.6% so their subsidies per student fell but only by -2.5%. They put most (69%) of their increased sticker price into more net revenues (by 52%), which let them increase spending per student (by 6.8%). At the other end, in the two year colleges (to which the largest number of students go), a huge increase in enrollments (26%) was met with enough increase in subsidy resources to leave subsidies per student essentially unchanged (0.5%) and allow an increase in educational expenditures (2.4%). A modest rise in sticker price ($530, though 44%) was used mainly (71%) to reduce the general subsidy and increase financial aid, dollar for dollar. General subsidies went down by 4.7% while financial aid went up by 62%.

Slicing the public sector the other way – by size of student subsidies – as in the second section of Table 2, tells much the same story of narrowing subsidy differences. Though increased enrollments were heavily concentrated among the low-subsidy schools, those are also the schools that saw the smallest decline in per student subsidies – the

schools that were best protected against the dilution of their subsidy resources by increased student numbers. Subsidies per student fell by an average of 4.9% in the top half of the public sector but by only 1.3% in the bottom half. And spending per student increased in four out of five deciles in the bottom half (averaging 3.3%) but fell in three out of five deciles in the top half (averaging .4%). Within the public sector, the Gini coefficient on subsidy fell from .1893 to .1757.

I'd conclude that the public sector in this period saw students at the bottom – in the two-year schools and in the bottom 30% by subsidy size – protected by public policy with modest increases in net price and increased subsidies and spending despite large enrollment gains. At the other end, the public research universities appeared to have protected themselves with small increases in enrollment and big increases in sticker price that were largely turned into revenues to support increased educational spending. In the price-cost shorthand of the student's cost of a dollar's worth of education, the top decile public sector schools started the period as a super-bargain in 1987, charging about 7 cents on the dollar, and ended up in 1996 at more than 12 cents – a 63% increase. Those at the bottom of the public sector started out charging 15 cents on the dollar and ended at 18 cents – a 20% increase.

If the public sector was characterized, overall, by withdrawal of public support at the same time that enrollments rose dramatically, the private sector was characterized by increased market competition. Private sector enrollments went up less than in the public sector (13% versus 15.2%), subsidies were reduced less (-1.6% versus –3.8%) and

smaller proportional increases in sticker price (42% versus 47%) produced more modest increases in net tuition (30% versus 42%) but still yielded, from their bigger base, enough dollars in new tuition income ($1,734) to support a substantial increase in educational spending ($1,577). And while the price of a dollar's worth of education went up a bit in the private sector (17.7%), it went up a whole lot more in the public sector (41%), leaving private schools relatively more competitive.

But differences in wealth and subsidy among schools in the private sector – stratification – clearly increased as the rich Research and Doctoral Universities got richer and the poor Comprehensive Universities and Liberal Arts Colleges got poorer. With large increases in donative resources and modest increases in student numbers, the schools at the top of the private sector increased their sticker prices modestly and spending on their students significantly. So student subsidies increased nicely at the top. Below the top, the effects of competition show up most starkly in the Comprehensive Universities and Liberal Arts Colleges where enrollments increased by 21.5% and 17.2%, respectively, while subsidies per student fell by 16.3% and 0.8%. In Comprehensive Universities, the general subsidy dropped 50% while price discounting increased by more than 80%. The result of all this is summarized in a private sector Gini coefficient on subsidy that rose from .2986 to .3384 -- at the beginning of the period the gap between public and private sector coefficients was .1093 and at the end, it was .1627.

The Implications of Present Saving for Future Stratification

Turn now to what the future might hold – where we seem to be going in these economic dimensions of institutional disparity. In the private sector, especially, a major source of change in stratification is institutional saving – a school's accumulation of the wealth (physical and financial) with which to support the future non-tuition income that will help pay for future student subsidies. Extant wealth is the result of past saving – taking in more than was spent – and future wealth will be the result of past and present saving (positive or negative).[19]

Recently available estimates of saving by individual colleges[20] can suggest what effect the current distribution of saving might have on future economic stratification. Saving estimates were generated for a panel of some 1,600 schools based on IPEDS financial data and – to damp the volatility of saving during the recent past – averaged over three academic years, 1986-7, 1990-1, and 1995-6, to yield more stable figures.[21] Because of the incomplete reporting of income data in IPEDS, each school's saving had to be estimated from the reported change in its net wealth over the appropriate year.[22]

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[19] At this point it becomes useful to fill out the algebra that describes the accounting and economics of a college or university. The sources and uses of funds are

(1) $p_n + \delta \equiv c + v$,

where p_n is net price, δ is non-tuition income (donative resources), c is educational expenditures and v is saving (all per student). The sources of non-tuition income are

(2) $\delta = rw + g + a$

where r is the rate of return on wealth, w, while g is gifts and a appropriations. The uses of non-tuition income are

(3) $\delta = c + v - p_n = s + v$

where s is per student subsidy. Finally, linking behaviors over time, saving changes net wealth,

(4) $v = \Delta w$.

[20] Winston-Carbone-Hurshman, forthcoming.

[21] There were as many as 2,100 schools for which saving could be estimated for one of these years, but it seemed advisable to use the panel of 1,600 for which all three years' data could be got in order to smooth saving during what was a volatile period.

[22] See Winston-Carbone-Hurshman (forthcoming) for details.

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Table 3 shows estimated per-student saving averaged over those three years (Col 2) along with average institutional wealth (Col. 7) and student subsidies (Col 3) for 1995-6. The top three lines, again, show values for all institutions and then public and private sector schools, separately. The difference in institutional saving between public and private sector saving is striking but should be interpreted with caution. Indeed, given the very different role that individual institutional saving plays in supporting student subsidies in the two sectors, it is probably wise in this discussion to confine attention to what's happening within each sector, rather than try to make comparisons between them.[23]

In Table 3, the projections in Columns 4, 5, 6, and 8 simply show how the continuation of the average saving behavior (and circumstances) in the three years would affect student subsidies and wealth under conservative assumptions about investment returns and spending availed, in ten, twenty, and thirty years. It's reassuring to note that the three years that went into the average saving estimates, despite their occurrence in the economically exuberant recent past, weren't all that far off the charts in income and saving (indeed, the average real per capita GNP in those three years was slightly below a 30 year linear trend). The real rate of total return used to project the impact of that saving is the modest 8.33% that we've used in subsidy calculations and the 'avail' rate at which

[23] Though the differences are increasingly being blurred by aggressive fund raising in the public sector, it remains that the stand-alone private school is more dependent on its own behavior and circumstances for its future resources, hence its standing in the hierarchy, while the public institution will depend (for better or for worse) on the generosity of future publics and legislatures.

endowment is used to support current spending is 5% so saving is compounding, in these projections, at an annual rate of 3.33%.

Clearly, saving per student has been significant at some schools and significantly different among them. In both sectors, saving, averaged over those three years, increased nearly monotonically with subsidy and wealth. That is the dominant fact conveyed by Table 4 – that it is the wealthy, high-subsidy schools in which saving has been concentrated so that's where wealth – and student subsidies – will increase the most. Overall, nearly 50% of all saving per student has been done by schools in the top 20%, ranked by their student subsidies, while 11% was done in the bottom 20%. The Gini coefficient on the distribution of saving is a whopping 0.805 in contrast to a coefficient of 0.238 on current subsidies and 0.519 on current wealth. And since saving is compounded to estimate the future disparities in subsidies and wealth, it is not surprising that 30 years out disparities are projected to increase dramatically. The Gini coefficient on subsidies grows from 0.238 to 0.260 to 0.300 and finally to 0.356 in ten, twenty, and thirty years while the coefficient on wealth reaches 0.687 at the end of the projection.

IV. Optimal Disparities

The previous sections have presented a lot of information about differences among schools in the economic resources they command and what they do with them, along with estimates of the future resource differences implied by schools' current saving behavior. But how are we to judge those facts? Is all that good or bad? To answer that, it's tempting to step immediately onto the high ground with the presumption that more

equality is obviously good and less is obviously bad. But it is surely too important an issue and too complex to be dismissed so easily. So I want to end this chapter by raising the question of the right degree of institutional disparity. How might we judge whether what we have seen is distributionally deficient or reassuring or alarming…? Is it broke? Or, put more modestly, how can we usefully think about that issue of the right amount of institutional stratification?

We're not much interested, of course, in disparities among institutions, as such, but instead, in differences in the economic resources that colleges deliver to their students. Are the institutional differences we see justified – socially – by differences in the students they serve?

There appear to be at least three – rather different – ways to get a purchase on "the right degree of disparity." One looks at the social aggregate welfare (or earnings or human capital); another looks at the shape of the distribution of resources, per se; and a third considers process – how the differences in resources are being generated. These three aren't, of course, either mutually exclusive or exhaustive – other criteria can be invoked. But together they may serve to suggest other dimensions of the social ideal and perhaps the limited role of institutional disparities, per se.

I've been working with a stiffly formal but surprisingly helpful microeconomic model of rational choice among activities that generates a usefully long catalog of individual characteristics and circumstances that will influence behavior, including going

to college and learning.[24] It's a very Becker-esque model of time allocation and activity choice[25] and it proves persuasively realistic – even intuitive – when applied to student behavior and choice. It recognizes, for instance, a student's intrinsic love of learning or its absence, her aptitudes (for learning and for doing other things), her impatience or ability to delay gratification, her beliefs about the payoffs of education in future income or satisfactions, the price she pays for her education, its quality, her energy, her resources, and maybe her likely contribution to society's welfare in contrast to her own. These will influence not only her choice of whether to go to college and what to do there, but how effectively she'll use what she's got from society's educational resources when she leaves.

An especially useful element in that model is the significant role played by a person's available alternative activities. Their appeal will determine the relative attractions of college and learning and hence whether that turns out to be the optimal, rational thing to do with her time and energies. One who doesn't believe, for instance, that there's much of a connection between learning now and income or other satisfactions in the future -- or who simply doesn't put much weight on anything that will happen far in the future – is obviously less likely to spend as much time or energy to take advantage of a college education as one who does. And, given those beliefs and knowledge and values and alternatives and costs, she's smart (entirely rational) not to.[26] So is a person who, despite significant respect for the future, has other more rewarding things he can do

[24] "Learning" is the (optimistic) shorthand for what a student does in college. It is assumed to result in positive human capital formation.
[25] Derived from Winston, 1989.

instead of going to (or staying in) college. The long list of rational college dropouts and avoiders of higher education would have to include Tiger Woods and other outstanding artists, performers, and sports figures, along with Bill Gates and Michael Dell, two of the wealthiest people in America.

The criterion for the right degree of institutional disparity most comfortable to most economists is the first one listed above – to use resources where they'll to the most good or, more stuffily, "the distribution of educational resources that would come from allocating them among students to equate the social marginal product per dollar." A dollar's worth of education, then, would make the same contribution to social welfare on whomever it's spent. And if students with similar characteristics attend the same schools an effective way to differentiate support among students would be to differentiate social support among the schools to which they go – to stratify.

But the value of an equal-marginal-product criterion may not lie in describing a socially attractive allocation of resources – to be achieved by ruthless differentiation among schools and their students on raw aptitudes and passions for learning. Instead, at the other end it warns against criteria that would allocate resources among schools and students *without* regard to their attitudes or interests or abilities. So it may serve more to emphasize the potential social cost of an extreme equalitarian allocation than as a desirable criterion in itself. Ignoring student talents and interests and energies and attitudes in allocating educational resources would carry a high social cost. Indeed the

[26]Beliefs about those relationships are undoubtedly heavily influenced by family and peers and a major contribution that households with high socio economic status make to children is probably by inducing

increasing concentration of students with the greatest aptitude for education at schools with the greatest educational resources[27] may well be A Very Good Thing for Society.

Whether stratification is a good thing will depend in large measure on how social is the social marginal product. A richer vision of the relevant social product – than one that simply aggregates individual wages or welfare or product – would emphasize externalities. It might follow Nicholas Lemann to ask to what use a student puts all that accumulated educational capital – whether a highly meritocratic admission process at the richest schools, emphasizing productive efficiency, leads to the largely private gains of a job at McKinsey, with Rolex and BMW, or to work in service of more broadly social objectives.[28] That question brings Lemann to skepticism about the current pattern of generous support of highly talented students who then often simply take the money and run to the private rewards of high paying jobs, leaving others to worry about the civil society and about everyone else. Recognizing what they do with their considerable human capital, Lemann would argue, should temper our enthusiasm for a system that selects and rewards the most talented and hardworking students with disproportionate educational resources – that allocates resources to the most productive students through the wealthy schools that teach them. A broader measure of social marginal product would concentrate resources on those talented students who are most likely to use their abilities on behalf of society most broadly.

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them to believe, from an early age, that these variables have high values. See Ellwood and Kane, inter alia.

[27] Hoxby-Long, 1999, and Frank-Cook, 1996.

[28] See Lemann, 1999a and 1999b.

The second criterion for the right degree of disparity would pay attention to the shape of the resulting distribution of resources, per se, rather than to the aggregation of outcomes over individuals or society. A simple "Rawlsian" criterion might give compensatory resources to those who are least advantaged even if that ran into problems of individual abilities, interests, and motivation, leading back to individual characteristics and optimal individual behavior.[29] It's interesting – to return to the fact noted above – that there appears to have been a rather Rawlsian protection of students at the bottom of the public sector hierarchy during the tax revolt of the '80's[30] as their subsidies were kept high and their price/cost ratios were kept low. A less simplistic Rawlsian criterion would tolerate initial disparities, favoring the highly talented and energetic so long as their productivity eventually served the least advantaged. Indeed, Lemann's objections to the winners in the present system could be seen as deriving from an inadequate trickle down to the less fortunate members of society.

Or sheer political pragmatism might justify worries about the shape of the distribution of resources among colleges and universities, especially in recognizing the political and social role that higher education plays in supporting hopes for a better personal future – for one's self or one's children – and therefore the wisdom of making it available with minimal restriction even if that required reduced resources.[31] If anything

[29] Dworkin's insistence on the role of choice and responsibility for that choice [Sovereign Virtue] addresses that.
[30] Winston-Cabrone-Lewis.
[31] There's a danger, of course, that this may become something of a con – that hopes might be encouraged by promise of access to a "higher education" that is so lacking in resources and quality that it is unlikely to deliver on the promise.

is currently putting higher education finance on the national political agenda, it appears to be its role in personal expectations and opportunity.[32]

The third criterion for the right degree of institutional stratification, now and in the future, would rest on worries about the process by which disparities were established and are being expanded. It appears that the wealthy colleges and universities are increasingly engaged in a positional competition for limited student and faculty quality – for 'institutional excellence' – and that that competition has increasingly taken on the characteristics of a positional arms race.[33] What's worrisome about such an arms race is, of course, that competitive pressures on the individual school become relentless – if other, peer, schools are doing it, a school has got to do it too and when 'it' is fund raising to increase a school's student subsidies, hence its attractiveness to the best students and faculty, it becomes very difficult for a school to opt out of that race. Being overtaken in the excellence hierarchy is akin to fiduciary irresponsibility.

The other, and perhaps more worrisome, aspect of an arms race is that it's a race without a finish line. So long as peer institutions keep mounting ever-larger fund drives, a school has got to do it too or risk position, prestige, excellence and, ultimately, quality. And a significant part of the disproportionate saving at the upper end revealed in the tables of Part III above was generated by increasingly energetic fund raising. So, a process of positional competition for subsidy resources suggests that if resource disparities are not yet unacceptable in US higher education, they may be moving in that

[32] Ikenberry-Hartle, 1998
[33] Winston, 2000, Frank, 1999

direction. Already the wealthy schools are locked in a competition among themselves that will continue to amplify their advantage over the less wealthy – and continue without apparent end. The thirty-year projections of saving and wealth accumulation in Part III may be overstated by the currently exuberant stock market, but they're probably understated by assuming an unchanged intensity of positional competition for subsidy funds.

The right degree of stratification among US colleges and universities is probably an amalgam of these. More resources should arguably go to those schools whose students can and will use them most productively but on behalf of society and not just their own individual gain – whether directly or indirectly, society should benefit from differences in allocation of educational resources among colleges and universities. Too much difference among colleges, however, will have morale and disincentive effects. And we may want to worry about a process through which schools' positional competition for relative excellence amplifies resource differences without regard to society's needs.

VI. Conclusion

There are big differences in the economic resources available to different schools and their students. US higher education is a highly stratified hierarchy of institutions where society's resources – as student subsidies – are very unevenly distributed, much more unevenly than the prices students pay. Student subsidies are about the same, on average, in the public and private sectors, but in public colleges they are embedded in

less spending per student and in lower prices and the range of subsidies in the public sector is narrower. The distribution of subsidies among schools appears to be changing. The uneven incidence of the recent tax revolt and of enrollment expansion in the public sector appears to have protected student subsidies in the schools at the bottom while allowing those at the top to protect themselves by shifting more of the burden of payment to their students through higher net prices and restricted enrollment – by privatization. In the private sector, the resource-rich schools have used their wealth to increase subsidies and spending with less increase in price, moving themselves further away from the rest of the private higher education which has been caught in increasingly intense price competition. And the distribution of recent institutional saving among schools forecasts wider future differentiation of wealth and subsidies.

But while we might accept a high degree of institutional stratification – by putting the emphasis on efficiency – there would remain the more fundamental question addressed by others in this volume – especially by Ellwood and Kane and by McPherson and Schapiro – of whether students have <u>access</u> to the strata appropriate to their aptitudes, interests, and ambitions. If we could be convinced that the right students go to the right schools – without barriers of family income or race or sophisticated and inaccessible information – a high degree of institutional stratification might well be deemed quite right for society.

Table 1

Costs, Prices, Subsidies and Aid in U.S. Colleges and Universities, 1995-6

per FTE student

	Student Subsidy	Educational Costs	Price: Net Tuition & Fees	Sticker Price	General Subsidy	Financial Aid	Price to Cost Ratio
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	$s=c-p_n$	c	p_n	p_s	$c-p_s$	p_s-p_n	p_n/c
All Institutions	$8,721	$12,779	$4,058	$6,429	$6,350	$2,371	31.8%
Public Institutions	$8,215	$9,554	$1,339	$2,424	$7,130	$1,084	14.0%
Private Institutions	$9,371	$16,911	$7,541	$11,561	$5,350	$4,021	44.6%
Subsidy Deciles - Public Sector							
Decile 1	$13,527	$15,380	$1,853	$2,991	$12,389	$1,138	12.0%
Decile 2	$10,603	$11,870	$1,266	$2,193	$9,676	$927	10.7%
Decile 3	$9,445	$10,926	$1,481	$2,547	$8,380	$1,065	13.6%
Decile 4	$8,826	$10,102	$1,276	$2,153	$7,949	$877	12.6%
Decile 5	$8,097	$9,461	$1,364	$2,468	$6,993	$1,104	14.4%
Decile 6	$7,351	$8,508	$1,157	$2,131	$6,377	$973	13.6%
Decile 7	$6,846	$8,228	$1,382	$2,358	$5,870	$976	16.8%
Decile 8	$6,527	$7,888	$1,361	$2,294	$5,594	$933	17.3%
Decile 9	$5,894	$7,028	$1,134	$2,150	$4,878	$1,016	16.1%
Decile 10	$4,996	$6,111	$1,115	$1,885	$4,226	$770	18.2%
Subsidy Deciles - Private Sector							
Decile 1	$23,799	$33,221	$9,422	$15,574	$17,647	$6,152	28.4%
Decile 2	$13,786	$21,196	$7,411	$12,942	$8,254	$5,531	35.0%
Decile 3	$10,759	$17,876	$7,116	$11,715	$6,161	$4,599	39.8%
Decile 4	$9,737	$16,573	$6,835	$11,129	$5,444	$4,294	41.2%
Decile 5	$8,489	$16,125	$7,636	$12,151	$3,974	$4,515	47.4%
Decile 6	$7,423	$14,618	$7,195	$11,688	$2,930	$4,493	49.2%
Decile 7	$6,240	$13,745	$7,506	$11,164	$2,581	$3,659	54.6%
Decile 8	$5,796	$13,420	$7,623	$11,273	$2,146	$3,650	56.8%
Decile 9	$4,485	$11,543	$7,058	$10,505	$1,038	$3,447	61.1%
Decile 10	$3,024	$10,613	$7,589	$10,024	$588	$2,436	71.5%
Carnegie Type - Public Sector							
Research I	$10,766	$14,040	$3,274	$4,689	$9,352	$1,414	23.3%
Research II	$8,976	$12,240	$3,264	$4,524	$7,716	$1,260	26.7%
Doctoral	$8,854	$11,680	$2,826	$3,990	$7,690	$1,164	24.2%
Comprehensive	$8,524	$10,347	$1,823	$2,992	$7,355	$1,169	17.6%
Liberal Arts II	$7,996	$9,518	$1,521	$2,810	$6,708	$1,288	16.0%
Two-Year	$7,726	$8,476	$750	$1,733	$6,743	$983	8.8%
Carnegie Type - Private Sector							
Research I	$21,973	$35,335	$13,363	$18,839	$16,497	$5,476	37.8%
Doctoral	$8,971	$20,529	$11,558	$15,225	$5,303	$3,668	56.3%
Comprehensive	$5,949	$13,816	$7,867	$11,187	$2,629	$3,320	56.9%
Liberal Arts I	$14,670	$24,346	$9,676	$15,834	$8,511	$6,159	39.7%
Liberal Arts II	$8,311	$14,040	$5,729	$9,496	$4,543	$3,767	40.8%
Two-Year	$8,333	$13,530	$5,197	$8,175	$5,355	$2,978	38.4%
Specialized	$9,522	$16,715	$7,193	$10,247	$6,468	$3,054	43.0%

1. There are 1581 institutions in this population, 888 of which are public and 693 of which are private.

2. See Winston-Yen (1995) for details on the derivation of these data from the IPEDS Finance Survey.

3. Costs (Column 3) include a rental rate as the yearly costs of capital services (see Winston-Yen, 1995).

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Table 2

Changes in Costs, Prices, Subsidies, Aid, and Enrollment

1987 to 1996

	Enrollment	Student Subsidy	Educational Costs	Price: Net Tuition & Fees	Sticker Price	General Subsidy	Financial Aid
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
All Institutions	13.9%	-2.8%	5.9%	31.5%	41.5%	-14.9%	63.1%
Public Institutions	14.3%	-3.3%	1.3%	47.4%	50.3%	-8.0%	54.0%
Private Institutions	12.7%	-2.2%	9.4%	28.5%	39.4%	-24.5%	66.3%
Carnegie Type - Public Sector							
Research I	2.2%	0.6%	9.2%	57.0%	58.4%	-5.0%	61.4%
Research II	9.1%	-12.4%	-0.8%	59.3%	58.6%	-18.4%	56.8%
Doctoral	13.4%	-8.8%	0.1%	48.2%	50.9%	-14.3%	57.3%
Comprehensive	14.3%	-9.2%	-1.1%	60.8%	52.4%	-14.0%	40.0%
Liberal Arts II	25.9%	-15.3%	-7.1%	88.3%	52.9%	-20.4%	25.4%
Two-Year	21.8%	1.0%	2.9%	28.0%	45.7%	-4.1%	63.1%
Carnegie Type - Private Sector							
Research I	10.2%	14.5%	18.7%	28.0%	31.9%	8.3%	41.8%
Doctoral	6.2%	8.5%	15.8%	21.9%	29.7%	-12.1%	63.6%
Comprehensive	19.6%	-15.3%	4.5%	28.6%	40.9%	-47.5%	81.2%
Liberal Arts I	4.8%	9.8%	14.4%	22.1%	42.6%	-17.0%	92.2%
Liberal Arts II	26.9%	-8.2%	3.0%	26.9%	35.6%	-29.4%	50.9%
Two-Year	-2.1%	1.9%	17.8%	43.9%	47.5%	-19.0%	55.3%
Specialized	1.4%	-2.1%	12.5%	37.9%	43.0%	-16.1%	58.3%
Subsidy Decile - Public Sector							
Decile 1	8.3%	-6.5%	-2.2%	63.0%	57.3%	-9.3%	49.6%
Decile 2	16.5%	-5.4%	-1.8%	51.0%	49.9%	-10.2%	48.9%
Decile 3	5.4%	-7.3%	-1.2%	69.4%	53.4%	-11.3%	36.9%
Decile 4	10.8%	1.7%	5.1%	39.4%	47.9%	-2.9%	59.1%
Decile 5	11.4%	-5.2%	-0.2%	45.9%	47.3%	-10.4%	48.9%
Decile 6	17.0%	-2.7%	2.2%	52.3%	52.9%	-8.0%	53.5%
Decile 7	18.1%	-1.5%	3.9%	50.0%	50.1%	-6.3%	50.1%
Decile 8	17.3%	2.6%	6.8%	37.1%	46.2%	-2.9%	60.8%
Decile 9	26.7%	1.0%	4.0%	22.6%	42.5%	-6.7%	77.0%
Decile 10	23.4%	2.8%	8.2%	36.5%	50.3%	-4.7%	80.4%
Subsidy Decile - Private Sector							
Decile 1	8.7%	8.8%	12.4%	22.9%	33.5%	-0.2%	56.7%
Decile 2	7.3%	1.9%	9.0%	26.2%	38.0%	-15.8%	58.5%
Decile 3	10.9%	-10.8%	1.8%	31.6%	42.1%	-32.6%	61.0%
Decile 4	9.5%	-5.2%	6.5%	28.8%	37.4%	-25.8%	55.0%
Decile 5	11.1%	-9.7%	5.9%	31.6%	43.5%	-38.3%	71.2%
Decile 6	17.5%	-12.6%	5.8%	31.9%	43.4%	-45.2%	72.9%
Decile 7	18.9%	-2.8%	9.7%	24.0%	39.6%	-41.0%	84.7%
Decile 8	14.3%	-6.0%	14.0%	33.0%	42.3%	-42.8%	72.5%
Decile 9	13.8%	0.0%	14.7%	26.5%	40.2%	-51.3%	86.4%
Decile 10	14.9%	-4.9%	20.5%	31.7%	37.5%	-60.7%	67.6%

Table 3

Saving: Future Subsidy and Wealth Projections

Current data is averaged IPEDS data from 1986-7, 1990-1, and 1995-6, per FTE student

	Current Saving	Subsidy				Wealth	
		Current	In 10 Years	In 20 Years	In 30 Years	Current	In 30 Years
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
All Institutions	$1,497	$8,702	$9,583	$10,831	$12,599	$33,989	$116,187
Public Institutions	$577	$8,259	$8,598	$9,079	$9,761	$18,076	$49,762
Private Institutions	$2,676	$9,271	$10,844	$13,075	$16,236	$54,378	$201,304
Subsidy Decile - Public Sector							
Decile 1	$1,335	$14,390	$15,175	$16,288	$17,865	$46,622	$119,912
Decile 2	$885	$10,953	$11,473	$12,211	$13,256	$23,969	$72,563
Decile 3	$769	$9,991	$10,443	$11,084	$11,993	$22,911	$65,147
Decile 4	$525	$8,942	$9,251	$9,688	$10,308	$16,368	$45,185
Decile 5	$549	$8,131	$8,454	$8,911	$9,560	$16,396	$46,533
Decile 6	$519	$7,536	$7,841	$8,273	$8,886	$13,724	$42,196
Decile 7	$296	$6,969	$7,143	$7,390	$7,740	$14,870	$31,129
Decile 8	$427	$6,437	$6,688	$7,044	$7,549	$13,569	$37,031
Decile 9	$363	$5,831	$6,045	$6,347	$6,776	$11,988	$31,913
Decile 10	$334	$5,096	$5,293	$5,571	$5,966	$9,064	$27,398
Subsidy Decile - Private Sector							
Decile 1	$8,754	$20,374	$25,521	$32,815	$43,155	$171,886	$652,443
Decile 2	$3,731	$12,255	$14,448	$17,557	$21,964	$74,664	$279,479
Decile 3	$2,270	$10,526	$11,861	$13,753	$16,434	$55,651	$180,289
Decile 4	$1,620	$8,846	$9,799	$11,148	$13,062	$36,643	$125,564
Decile 5	$1,900	$7,676	$8,793	$10,377	$12,621	$37,915	$142,242
Decile 6	$1,563	$6,764	$7,682	$8,984	$10,830	$29,802	$115,582
Decile 7	$1,038	$5,788	$6,398	$7,263	$8,489	$25,127	$82,085
Decile 8	$1,293	$4,968	$5,729	$6,806	$8,333	$21,119	$92,087
Decile 9	$884	$3,500	$4,020	$4,756	$5,801	$15,202	$63,736
Decile 10	$1,175	$2,736	$3,426	$4,406	$5,794	$15,404	$79,913
Carnegie Type - Public Sector							
Research I	$1,177	$10,639	$11,331	$12,312	$13,703	$52,111	$116,735
Research II	$892	$9,431	$9,955	$10,699	$11,753	$34,772	$83,750
Doctoral	$722	$9,081	$9,505	$10,107	$10,959	$23,788	$63,420
Comprehensive	$661	$8,840	$9,229	$9,779	$10,559	$18,455	$54,723
Liberal Arts II	$556	$8,622	$8,949	$9,412	$10,068	$17,473	$47,990
Two Year	$437	$7,587	$7,844	$8,208	$8,724	$13,825	$37,810
Carnegie Type - Private Sector							
Research I	$6,493	$19,954	$23,771	$29,182	$36,851	$183,104	$539,528
Doctoral	$2,705	$8,382	$9,972	$12,226	$15,422	$62,804	$211,316
Comprehensive	$1,661	$6,374	$7,351	$8,735	$10,697	$30,856	$122,048
Liberal Arts I	$6,198	$13,606	$17,250	$22,415	$29,737	$116,178	$456,456
Liberal Arts II	$1,488	$8,614	$9,489	$10,730	$12,488	$31,013	$112,725
Two Year	$1,430	$7,901	$8,742	$9,933	$11,622	$35,116	$113,616
Specialized	$2,590	$9,478	$11,000	$13,158	$16,217	$49,965	$192,130

Table 4

Distribution of Present and Future Resources

Schools ranked by subsidy

		Subsidy				Wealth	
	Current Savings	Current	In 10 Years	In 20 Years	In 30 Years	Current	In 30 Years
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Bottom 20%	11.1%	10.5%	10.6%	10.6%	10.7%	10.0%	10.8%
Top 20%	49.5%	34.5%	35.8%	37.4%	39.1%	47.3%	48.8%
Top 5%	28.1%	12.9%	14.3%	15.9%	17.6%	25.5%	27.3%
Top 1%	11.1%	4.0%	4.6%	5.4%	6.2%	9.3%	10.6%
Gini coefficient	0.8048	0.2379	0.2593	0.3000	0.3557	0.5190	0.6865
Public	0.8007	0.1739	0.1793	0.1950	0.2220	0.3557	0.5831
Private	0.7061	0.3024	0.3263	0.3962	0.4221	0.4984	0.6200

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